

IN THE CLAIMS

1. (Currently Amended) A method of cleaning a semiconductor surface, comprising:
placing the semiconductor surface in contact with a carrier fluid including a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface;
forming a supercritical fluid adjacent to the semiconductor surface; and
changing a thermodynamic condition of the supercritical fluid to cause gas bubbles in the carrier fluid.
2. (Original) The method of claim 1, wherein forming a supercritical fluid includes forming a carbon dioxide supercritical fluid.
3. (Withdrawn) The method of claim 1, wherein forming a supercritical fluid includes forming a supercritical fluid from a group consisting of nitrous oxide, ethane, ethylene, propane, and xenon.
4. (Withdrawn) The method of claim 1, wherein forming a supercritical fluid includes forming a supercritical fluid from a group consisting of ethyl alcohol, ethyl ether and methyl alcohol.
5. (Canceled)
6. (Withdrawn) The method of claim 1, wherein placing the semiconductor surface in contact with a carrier fluid includes immersing a semiconductor in a carrier fluid including an acid cleaning solution.
7. (Original) The method of claim 1, further including providing sonic wave energy to the carrier fluid.
8. (Withdrawn) The method of claim 1, further including brushing the semiconductor

surface.

9. (Original) The method of claim 1, wherein forming a supercritical fluid includes adjusting both a pressure and temperature of a surrounding gas atmosphere to form the supercritical fluid.

10. (Original) The method of claim 1, wherein changing a thermodynamic condition includes changing both a pressure and temperature of the supercritical fluid.

11. (Currently Amended) A method of cleaning a semiconductor surface, comprising:
placing the semiconductor surface in contact with a carrier fluid including a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface;
forming a carbon dioxide supercritical fluid adjacent to the semiconductor surface; and
changing a thermodynamic condition of the carbon dioxide supercritical fluid to cause gas bubbles in the carrier fluid.

12-13. (Canceled)

14. (Original) The method of claim 11, further including providing sonic wave energy to the carrier fluid.

15. (Withdrawn) The method of claim 11, further including brushing the semiconductor surface.

16. (Currently Amended) A method of cleaning a semiconductor surface, comprising:
placing the semiconductor surface in contact with a carrier fluid including a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface;
forming a supercritical fluid adjacent to the semiconductor surface;
changing a thermodynamic condition of the supercritical fluid to cause gas bubbles in the carrier fluid; and

providing supplemental mechanical energy at the semiconductor surface in addition to the gas bubbles.

17. (Original) The method of claim 16, wherein forming a supercritical fluid includes forming a carbon dioxide supercritical fluid.

18-19. (Canceled)

20. (Original) The method of claim 16, wherein providing supplemental mechanical energy includes providing sonic wave energy to the carrier fluid.

21. (Withdrawn) The method of claim 16, wherein providing supplemental mechanical energy includes brushing the semiconductor surface.

22. (Currently Amended) A method of cleaning a semiconductor surface, comprising:
placing the semiconductor surface in contact with a ~~carrier~~ fluid including a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface;
forming a supercritical fluid adjacent to the semiconductor surface;
changing a thermodynamic condition of the supercritical fluid to cause gas bubbles in the carrier fluid; and
providing sonic wave energy to the carrier fluid.

23. (Original) The method of claim 22, wherein forming a supercritical fluid includes forming a carbon dioxide supercritical fluid.

24. (Original) The method of claim 22, wherein providing sonic wave energy to the carrier fluid includes providing ultrasonic wave energy to the carrier fluid.

25. (Original) The method of claim 22, wherein providing sonic wave energy to the carrier fluid includes providing megasonic wave energy to the carrier fluid.

26. (Withdrawn – Currently Amended) A method of cleaning a semiconductor surface, comprising:

placing the semiconductor surface in contact with a ~~carrier~~ fluid including a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface;

forming a supercritical fluid adjacent to the semiconductor surface;

changing a thermodynamic condition of the supercritical fluid to cause gas bubbles in the carrier fluid; and

brushing the semiconductor surface.

27. (Withdrawn) The method of claim 26, wherein forming a supercritical fluid includes forming a carbon dioxide supercritical fluid.

28-40. (Canceled)

41. (Currently Amended) A method of cleaning a semiconductor assembly, comprising:

placing the semiconductor assembly in contact with a ~~carrier~~ fluid including a halogenated hydrocarbon carrier fluid in an amount sufficient to immerse the semiconductor surface;

forming a supercritical fluid adjacent to the semiconductor surface;

reducing pressure at a given temperature above the critical point in the supercritical fluid to cause gas bubbles in the carrier fluid.

42. (Original) The method of claim 41, wherein forming a supercritical fluid includes forming a carbon dioxide supercritical fluid.

43. (Canceled)

44. (Currently Amended) The method of claim 41, wherein immersing the semiconductor assembly in a halogenated hydrocarbon carrier fluid includes immersing the semiconductor assembly in a chlorocarbon solvent.

45. (Withdrawn - Currently Amended) The method of claim 41, wherein immersing the semiconductor assembly in a halogenated hydrocarbon carrier fluid includes immersing the semiconductor assembly in a chlorofluorocarbon solvent.

46. (Original) The method of claim 41, further including providing sonic wave energy to the carrier fluid.

47-50. (Canceled)